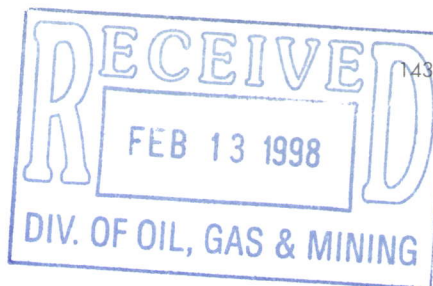




February 9, 1998



1431 Kensington Square Court  
Murfreesboro, TN 37130  
Telephone 615/ 896-7375  
FAX 615/ 890-7016

Mr. D. Wayne Hedberg, Permit Supervisor  
Division of Oil, Gas and Mining  
1594 West North Temple, Suite 1210  
P. O. Box 145801  
Salt Lake City, Utah 84114-5801

**RE: Ekins East Mine M/049/032, Utah County, Utah  
Notice of Intent to Commence Large Mining Operation  
Responses to Comments**

Dear Mr. Hedberg:

The enclosed materials are submitted on behalf of Intermountain Aggregate Corporation. The hill which is proposed to be mined is composed solely of limestone with little soil material. The mining operation will consist of flattening this limestone hill. All aggregate material will be used, even the lower grades. There is an existing well on the property which has been in place several years. This well will be used in the mining operation and will not be reclaimed.

Permits obtained to date are:

NOI for Construction Activity, No. UTR100427	UDOT Entrance Drive, No. 97-411-3
NOI for Industrial Activity, No. UTR100434	Air Permit, DAQE-1012-97
SWPPP, dated August 1997	

The materials enclosed in this package address the specific questions/comments contained in your correspondence of December 10, 1997. Please use the disturbed area quantities provided in these materials.

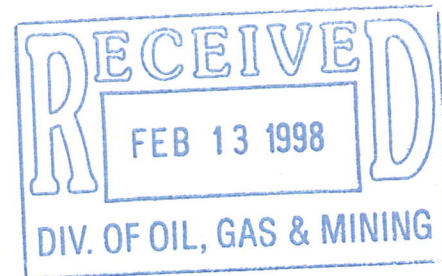
Following your review of our responses, we will be glad to reassemble the materials as you direct.

Sincerely,

**WISER COMPANY, LLC**

Rick S. Cantrell

/ld  
enclosures



**Ekins East Mine  
M/049/032  
Utah County, Utah**

**Responses to  
Review Comments**

Presented by

**Wiser Company, LLC**

1431 Kensington Square Court  
Murfreesboro, Tennessee 37130  
Telephone 615/896-7375  
Fax 615/890-7016  
[www.wiserco.com](http://www.wiserco.com)

February 1998



**RESPONSE TO INITIAL REVIEW COMMENTS  
FOR  
EKINS EAST MINE M/049/032, UTAH COUNTY, UTAH  
INTERMOUNTAIN AGGREGATE CORPORATION**

**R647-4-105**

- 105.1 Comment: *There are several sections of road leading through the spoils and mining areas which are not identified as existing or new disturbances.*

Response: Please refer to Exhibit A which color codes the roads as "existing/improved roads," "new roads," and "off-road trails." The mapping compilers depicted the existing off-road trails within and near the site. Some of these exist in areas that will be disturbed and are therefore included in disturbance areas. An existing off-road trail which is substantially worn enters the property from State Highway 6. This existing road will be improved and become a part of the primary access road. It will be paved as required by the Utah County Planning Department. The owner is requesting that this access road remain.

- 105.2 Comment: *Provide an additional surface facilities drawing which provides a larger view of the plant and yard area. . .include pond, sales office, stockpiles crusher, etc., . . .at a scale of 1"=200'.*

Response: A surface facilities map is attached as Exhibit B. Depicted on this map are the scales, office, primary crusher, secondary crusher, screens, conveyors, stockpile areas, and sediment pond. At this time, the individual stockpile areas are not identified as to the size stone each would contain.

- 105.3 Comment: *Provide two cross sections for each of the main quarry excavations.*

Response: Please see Exhibit C detailing these cross sections. As we do not anticipate long-term storage of material in the spoils area, we did not provide cross section details of this area.

Comment: *Provide a "Reclamation Treatments" map.*

Response: Please see Exhibit D, "Reclamation Treatment Map."

**R647-4-106**

- 106.2 Comment: *No specific description of the depth of quarry excavation was provided.*

Response: In the Phase I area, the highest existing elevation is 5015.8; the finished pit floor elevation will be 4,925. In the Phase II area, the highest existing elevation is



5,000; the finished pit floor elevation will be 4,295. In the Phase III area, the highest existing contour is 5190; the pit floor elevation at the end of year 5 will be 5090. As depicted on the cross sections (Exhibit C), there will be a 10-foot-wide bench at the first 10 feet of depth of excavation, then a 40-foot excavation depth with a 10-foot-wide bench. Around the perimeter of the quarry walls will be placed 4-foot to 6-foot diameter boulders arranged along side one another. As the first bench occurs at a depth of 10 feet, should someone make his way past the boulders and fall, the distance of his fall would only be 10 feet.

106.3 Comment: *Please provide a projected schedule for the three mining phases.*

Response: Phase I – 1 to 2 years.  
Phase II – year 2  
Phase III – year 2 to year 5

Comment: *Identify the area of disturbance to occur in the first five years.*

Response: Please see Exhibit D, "Reclamation Treatments Map." The disturbed area will consist of a total of 62.6 acres. The silt fence not previously included is now included.

106.4 Comment: *Provide an estimate of overburden to be removed annually or during the life of the mine for the different phases.*

Response: This hill has been investigated geologically and consists entirely of limestone. The soil thickness is minima, perhaps 12 to 18 inches, and contains limestone (pebbles, cobbles, and boulders). Except for the topsoil, which is thin and erratic, the overburden material will be utilized as fill or base in the plant site and road construction. Since it is gravel rich, excess overburden will be used in the production of low-grade materials for use as fill and base. Any stockpiling of this overburden will be temporary.

Some deeper pockets of overburden exist atop the irregular limestone surface. Since the entire hill is limestone, the goal is to mine the hill flat and use the overburden on site or as a lower grade product.

106.6 Comment: *Provide protection of the topsoil with interim revegetation and posting signs.*

Response: The stored stockpile of topsoil will be revegetated with bluebunch wheatgrass and Lewis flat seed mixture. Signs will be posted on each of the four sides of the stockpile reading, "DIRT FOR RECLAMATION – DO NOT DISTURB." The signs will have black lettering on a yellow background, their dimensions will be 2 feet by 4 feet, and they will be attached to 4-inch x 4-inch posts 5 feet above the ground. A scraper will be used to redeposit the soil for reclamation purposes.



106.8 Comment: *Please estimate the average thickness of overburden material for the respective mining areas.*

Response: This site has not been drilled. Any overburden will be marketed as a base material and/or mixed with low-grade aggregate to be marketed. Please refer to the response to comment 106.4.

106.9 Comment: *Please provide an estimate of the amount of overburden material to be placed in each of the respective spoils areas.*

Response: Any overburden that is stockpiled will be remain only the minimum amount of time until it is sold. Please refer to the response to comment 106.4.

Comment: *Please provide the drainage calculations used to determine the size of the sediment pond.*

Response: Please see Exhibit E, "Drainage Calculations." These calculations were provided to the Utah Division of Water Quality.

#### **R647-4-107**

107.1 Comment: *What safety measures are proposed to prevent public access to the pit highwall areas during operation?*

Response: The highwall area will have a berm that meets MSHA standards, and commonly desk-sized boulders will be placed side by side around the highwall to prohibit vehicles and pedestrians from approaching the edge. Also, the first first bench which will be 10 feet in width will occur at a depth of 10 feet. The goal is to flatten this limestone hill.

107.2 Comment: *Show the location of diverted drainages on the appropriate figure and include the drainage sizing criteria for any diverted drainage.*

Response: As the mountain top is lowered, drainage previously flowing west and south will be directed to the drainage pond in the northeast area of the site. Please see Exhibit E identifying the acreage calculations which include the entire acreage.

#### **R647-4-109**

109.1 Comment: *Elaborate on how the mine will have no impact on groundwater, including the possible depth of the pit in relation to the water table and characteristics of the aquifer.*

Response: This quarry will not produce a "hole" in the ground. The operation will consist of mining a limestone hill to a base level. The lowest point of quarrying activity will be at an elevation of 4925. The elevation at the entrance drive at Highway 6 is 4703. The existing well on the property has a surface elevation of 5044. The recorded depth of the well is 400 feet, indicating water was encountered at an elevation of 4644. Therefore, we do not anticipate encountering or impacting groundwater.

- 109.4 Comment: *Provide a description of the highwall configuration at each pit after reclamation has been completed. Include typical bench widths, bench heights, inter-bench angles, total pit depth, and overall pit highwall angle in these pit descriptions.*

Response: Please see Exhibit C which depicts the proposed cross sections of the three mining areas. The first lift will be at a depth of 10 feet, creating a vertical highwall of 10 feet, followed by a bench 10 feet in width. Thereafter, lifts will be 40 feet followed by 10-foot benches.

Comment: *Provide site specific information to suport the statement of structural stability of the proposed highwall configuration.*

Response: Intermountain Aggregate's parent company operates several quarries in the eastern United States, and they have experience with this type of mining with regard to the highwall configuration. The mine plan envisions initial forty-foot hilltop limestone ore extraction proceeding in layers from west to east. Once the mining operations reach the permit boundary, pit mining will occur in forty-foot benches from west to east in accordance with MSHA requirements. Our geological investigation indicates that the bedding planes of bedrock down-dips approximately 25 degrees from the horizontal toward the east and southeast. By mining from the west to the east, a stable vertical wall will exist. Similar geological formations are found in our eastern U.S. sites, and the mining methodology employed at the other sites are appropriate for this site.

- 109.5 Comment: *Describe any proposed actions to mitigate any projected impacts.*

Response: All items have been addressed.

#### **R647-4-110**

Comment: *Consolidate all of the separate reclamation details under one reclamation section.*

Response: Please see Exhibit F, "Reclamations Plan -- Narrative."

- 110.1 Comment: *Include wildlife habitat as a land use.*

Response: See the revised/consolidated Reclamation Plan (included with these responses) for inclusion of wildlife habitat.



110.2 Comment: *Please clarify which sections of the access road if any are proposed to remain unreclaimed.*

Response: The section of entrance road from Highway 6 to the scales and office will not be reclaimed. Please see Exhibit D which depicts the road location and the area being reclaimed.

Comment: *Items 9 and 12 under the Reclamation Notes on the Reclamation Plan drawing refer to slopes at 3:1 vertical:horizontal. This appears to be a typographical error and was intended to be mean 3 Horizontal:1 Vertical.*

Response: This assumption is correct. There was a typographical error.

Comment: *On the Reclamation Plan sheet notes, please explain the conflict between items 4 and 6 regarding the burial of boulders and the pond.*

Response: The pond area will be reclaimed, including the spillway. Material from the site will be used to bring the pond area to an elevation of 4920 so that the natural drainage will continue.

Comment: *Will there be 12 inches or 18 inches of soil material redistributed.*

Response: It is believed that the depth of soil material to be removed varies from 12 inches to 18 inches. All soil material that is stripped is intended to be redistributed. The disturbed areas will receive a minimum of 12 inches to a maximum of 18 inches redistributed soil material.

Comment: *Burial of construction debris may require clearance from the State Division of Solid and Hazardous Waste.*

Response: No construction debris that remains or is created as a result of closing the operation will be buried on site. If such material is not reused, it will be removed for disposal at approved facilities.

110.3 Comment: *Please describe the reclamation proposed for the pit floor, benches, and highwall.*

Response: The pit floors and bench areas will be reclaimed. The vertical highwall cannot be reclaimed.

**EKINS EAST MINE M/049/032**  
**UTAH COUNTY, UTAH**

**INDEX OF EXHIBITS**

- Exhibit A: Road Identification
- Exhibit B: Surface Facilities Map
- Exhibit C: Cross Sections
- Exhibit D: Reclamation Treatments Map
- Exhibit E: Drainage Calculations
- Exhibit F: Reclamation Plan – Narrative



**EXHIBIT A**

**ROAD IDENTIFICATION**



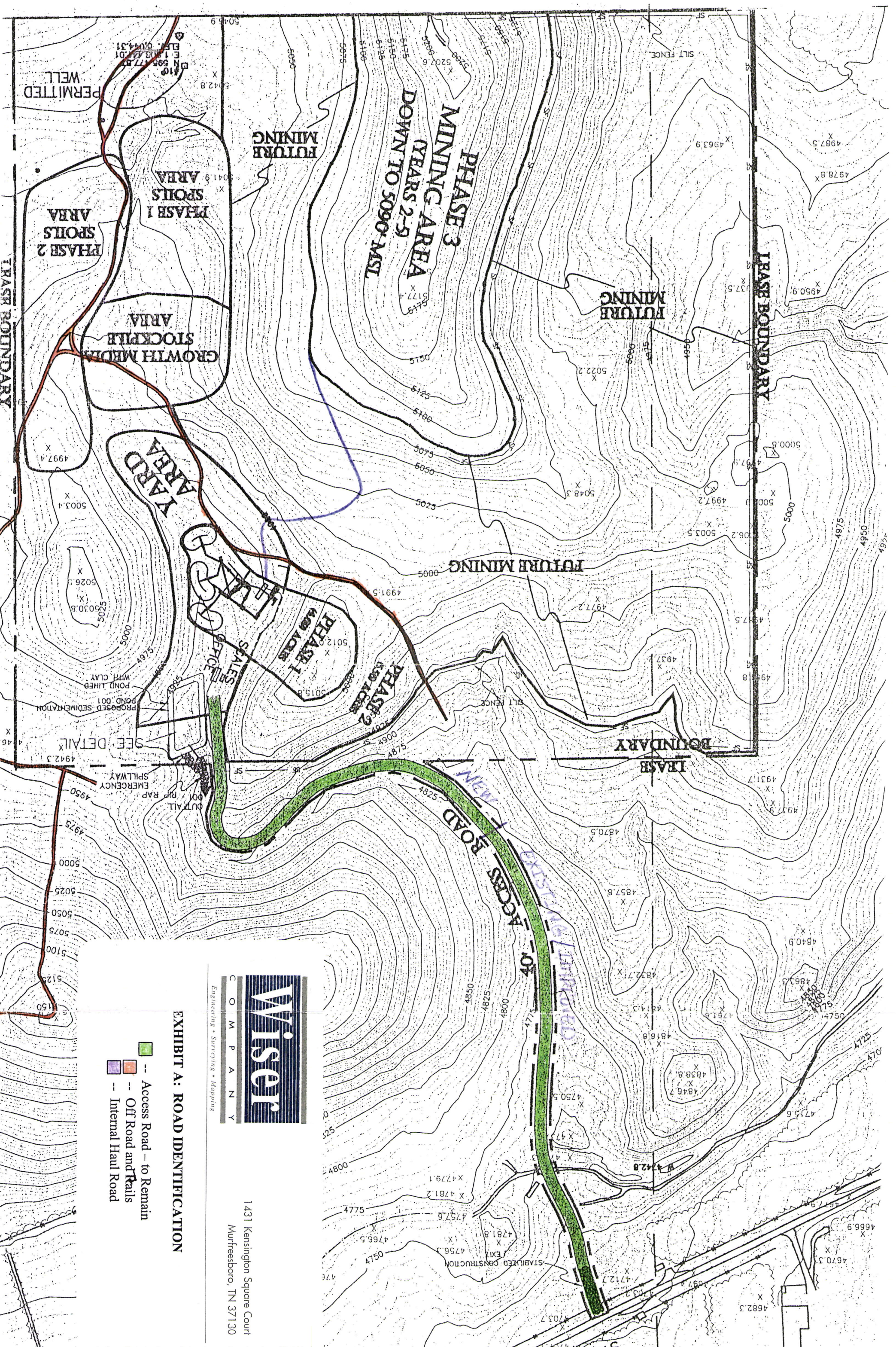


EXHIBIT A: ROAD IDENTIFICATION

- Access Road - to Remain
- Off Road and Rails
- Internal Haul Road



**EXHIBIT B**

**SURFACE FACILITIES MAP**

**EXHIBIT C**

**CROSS SECTIONS**



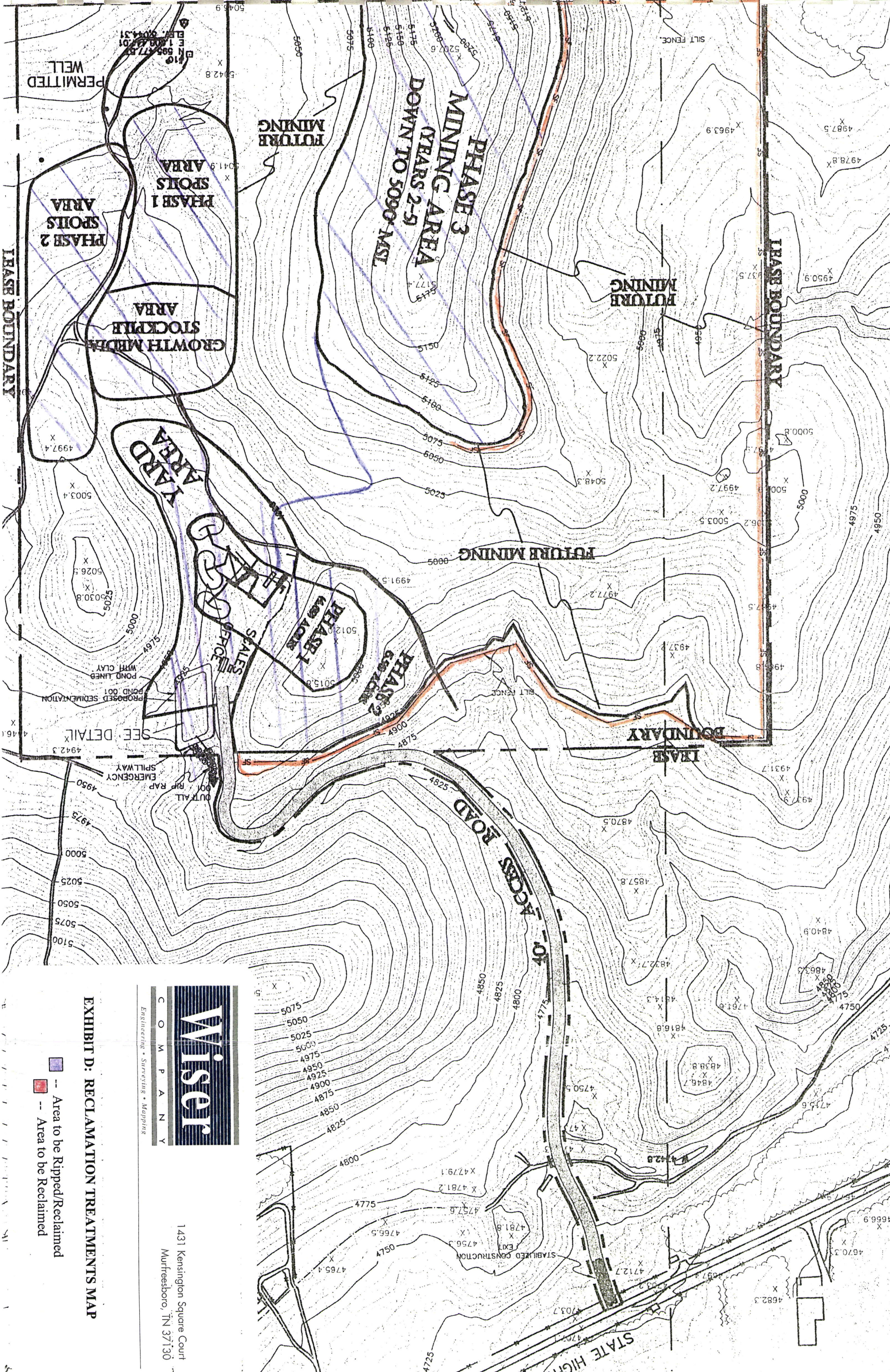




**EXHIBIT D**

**RECLAMATION TREATMENTS MAP**



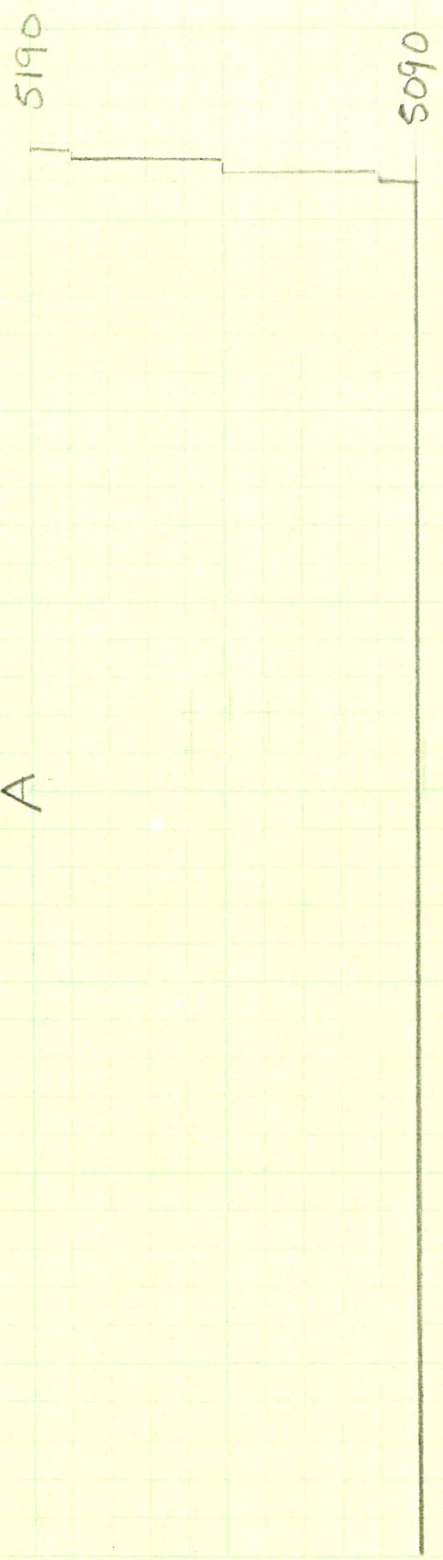




13-782 500 SHEETS FULLER 5 SQUARE  
42-381 50 SHEETS EYE-EASE 5 SQUARE  
42-382 100 SHEETS EYE-EASE 5 SQUARE  
42-383 100 SHEETS EYE-EASE 5 SQUARE  
42-384 100 SHEETS EYE-EASE 5 SQUARE  
42-385 100 SHEETS EYE-EASE 5 SQUARE  
42-386 100 SHEETS EYE-EASE 5 SQUARE  
42-387 100 SHEETS EYE-EASE 5 SQUARE  
42-388 100 SHEETS EYE-EASE 5 SQUARE  
42-389 100 SHEETS EYE-EASE 5 SQUARE  
42-390 200 RECYCLED WHITE 5 SQUARE  
Made in U.S.A.



Phase III  
PROPOSED  
A



AA



HORIZONTAL 1" = 200'  
VERTICAL 1" = 50'



## Section IV. Support Data- Engineering Summary & Calculations

### A. Summary

The following pages include calculations for ponds that discharge at monitoring point 001. The pond was designed using criteria from *Virginia Erosion and Sediment Control* book, *Handbook of Hydrology* book, and Haestad Methods (Pond Pack) software programs.

### B. Method of Design

The method used to design each and results are listed as follows:

- I. Basin area and drainage patterns were determined for each area.
- II. Minimum storage vol. was calculated based on the 25 yr storm event.

Structure	Drainage Area (acres)	Minimum Storage Volume (yd <sup>3</sup> )	Minimum Storage Volume (ac-ft)	Minimum Storage Volume (ft. <sup>3</sup> )
Pond 001	187	8712.0	5.4	235,224

- III. Basin shape and size was designed to conform with the existing topography. The pond bottom is designed at a 6% grade with a dam on the downstream side to retain water to an elevation of 4920 feet MSL.

Structure	Calculated Storage (ft. <sup>3</sup> )
Pond 001	250,000

- IV. Storage elevation curve was computed and cleanout elevation was determined.

Structure	Cleanout Elevation
Pond 001	4914.0

- V. Preliminary pond design was sketched considering minimum requirements, storage volume, and elevations.

- VI. Riser size and barrel size for principal spillway of each pond were determined based on a minimum drawdown of 6 hours to achieve 60% removal of sediment. Charts were used for sizing of barrel and pipe from the flow.

Structure	Minimum Flow (cfs)	Riser Size (in.)	Riser Head (ft.)	Calculated Flow (cfs)
Pond 001	4.3	18	4	10.9

Structure	Minimum Flow (cfs)	Barrel Size (in.)	Barrel Head (ft.)	Calculated Flow (cfs)
Pond 001	4.3	18	4	10.9

- VII. SCS Method was used to determine peak flow for each watershed and runoff based on the 10-year and 25-year 24-hour rainfall events.

10 year - 24 hour Rainfall Event = 1.5 inches  
 25 year - 24 hour Rainfall Event = 2.1 inches

Structure	Area (ac.)	CN (pre/post)*	Time of Conc. (hrs.)	Runoff (pre)* 25 yr 24 hr (inches)	Runoff (post)* 25 yr 24 hr (inches)	25 yr Peak Discharge (pre)* (cfs)	25 yr Peak Discharge (post)* (cfs)
Pond 001	187	60/80	0.75	0.08	0.62	4.3	76.2

\* Note: The (pre) and (post) represent pre and post construction areas.

- VIII. The emergency spillway was designed using the difference between the peak flow of the 100 year rainfall event and the discharge of the principal spillway. See detail drawings (sheet 5 of 5) for elevation of invert, cross-section, and other details.

$$Q_{es} = Q_{p25} - Q_{ps}$$

Structure	Bottom Width (ft.)	Side Slopes	Stage	Slope
Pond 001	10	2:1	1.1	2.9%

IX. The ponds were then check with Haestad Methods computer software models using the following procedure.

- 1) Graphical Peak Discharge calculations
- 2) SCS Tabular Method to compute peak discharge, runoff, and hydrographs (both 10 year and 25 year rainfall events)
- 3) Volume Rating Table
- 4) Input pond structures

Structure	25 yr Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Elevation (ft. MSL)	Top of Dam (ft. MSL)
Pond 001	72.1	32.3	4916.9	4920

### C. Conclusions

Pond 001 is adequate to retain and discharge the 25-year, 24-hour rainfall event without overtopping the dam.

**EXHIBIT F**

**RECLAMATION PLAN -- NARRATIVE**



# RECLAMATION PLAN FOR EKINS EAST MINE M/049/032

At present the land proposed for the Ekins East mining operation is vacant and used only for wildlife habitat. Upon completion of the mining operations, any existing buildings will be demolished and disposed of in accordance with current state and local regulations. All trash/debris will be removed to a proper facility for disposal.

The existing topsoil over this site varies in depth from 12 inches to 18 inches. All topsoil to be removed from the site will be stored/stockpiled and protected for utilization in the reclamation process.

Areas which have been compacted, such as stockpile pads, haul roads, foundation areas, pit floor, etc., will be ripped with a dozer prior to revegetation efforts. The entire disturbed area will then be prepared to receive soil material by employing a harrow or disc to loosen the surface to a depth of 6 inches. The reserved topsoil material will then be redistributed to a depth of 12 to 18 inches with a scraper. The entire area will then be scarified and seeded with the appropriate seed mixture chosen from a list of species suggested by the U. S. Soil Conservation Service:

<u>Common Name</u>	<u>Species Name</u>	<u>Rate (lbs/acre)*</u>
Thickspike wheatgrass	<i>Agropyron dasystachum</i>	1.0
Bluebunch wheatgrass	<i>Agropyron spicatum</i>	1.0
Western wheatgrass	<i>Agropyron smithii</i>	2.0
Piute orchard grass	<i>Dactylis glomerata</i>	0.5
Basin wildrye	<i>Elymus cinereus</i>	2.0
Ladac alfalfa	<i>Medicago sativa</i>	1.0
Yellow sweetclover	<i>Melilotus officinalis</i>	0.5
Palmer penstemon	<i>Penstemon palmerii</i>	0.5
Small burnet	<i>Sanguisorba minor</i>	1.0
Lewis flax	<i>Linum lewisii</i>	1.0
Mountain big sagebrush	<i>Artemisia tridentata vaseyana</i>	0.1
Cliffrose (or Bitterbrush)	<i>Cowania mexicana (Pursia tridentata)</i>	2.0
Forage kochia	<i>Kochia prostrata</i>	0.5
Woods rose	<i>Rosa woodsii</i>	<u>1.0</u>
<b>Total</b>		<b>14.1</b>

\*This is the recommended drill seeding rate. If the seed mixture is to be broadcast, the rate is increased by 50 percent.

At the end of the first five years of operation, approximately 62.6 acres will have been disturbed. Assuming 18 inches of topsoil depth, approximately 151,492 cubic yards of topsoil will have been removed and stockpiled. For purposes of reclamation, the topsoil will be removed from the stockpile and will be distributed over the disturbed area to a depth of 12 to 18 inches. The area will be prepared for re-vegetation and seeded. The following is an estimation of costs to accomplish this work:

<i><b>Item:</b></i>	<i><b>Equipment:</b></i>	<i><b>Estimated Cost</b></i>
Earthwork (moving 2,000 cubic yards/day)	Cat 623E Scraper (capacity of 23 cubic yards/day) to operate 600 hours @ \$230/hour	\$138,000
	Cat D-8N to operate 300 hours @ \$178/hour	53,400
	Cat 140H Grader to operate 300 hours @ \$101/hour	30,300
Seed drilling	Drill to operate 112 hours @ \$40/hour	4,480
Seeding	Seed mixture – 62.6 acres @ \$208/acre	13,020
Mobilization		2,500
Supervision		<u>4,500</u>
<b>Total</b>		<b>\$198,140</b>
10% Contingency		<u>24,620</u>
<b>Total Estimated Costs</b>		<b>\$222,760</b>

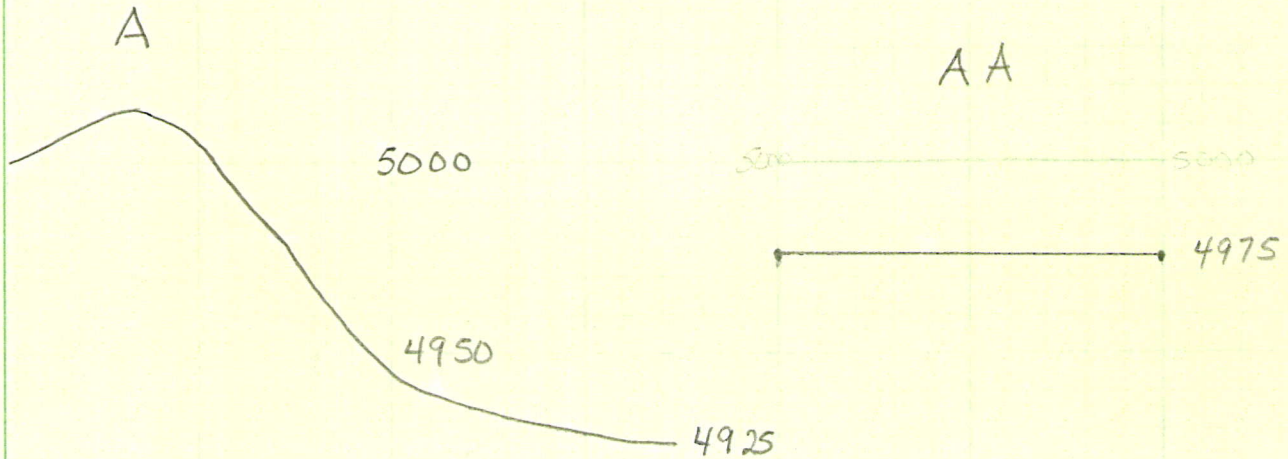
**EXHIBIT E**

**DRAINAGE CALCULATIONS**

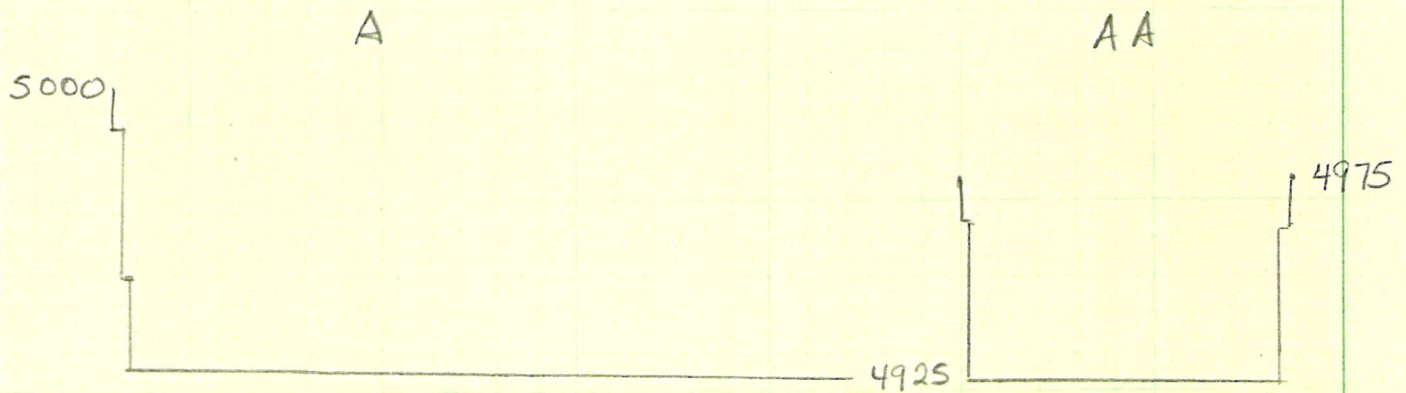


# PHASE I

EXISTING



PROPOSED

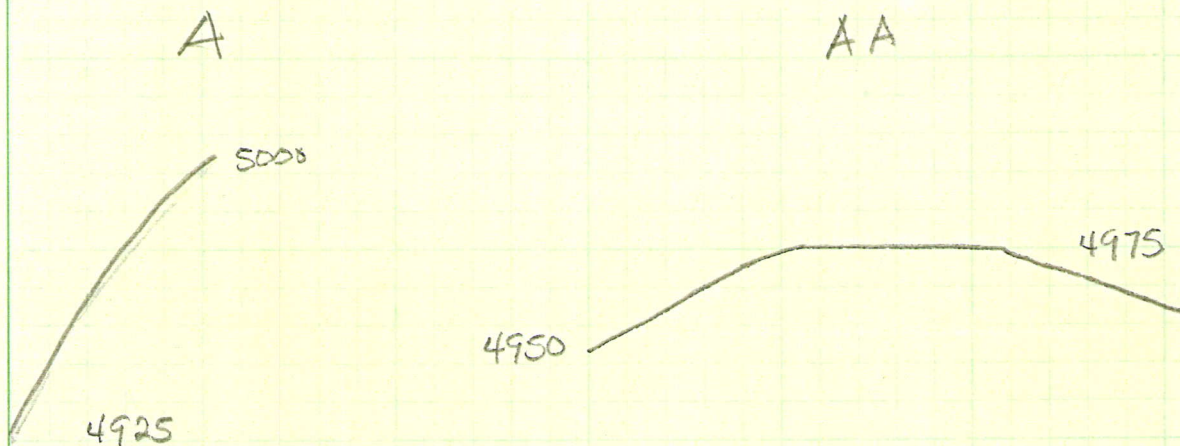


HORIZONTAL 1" = 200'

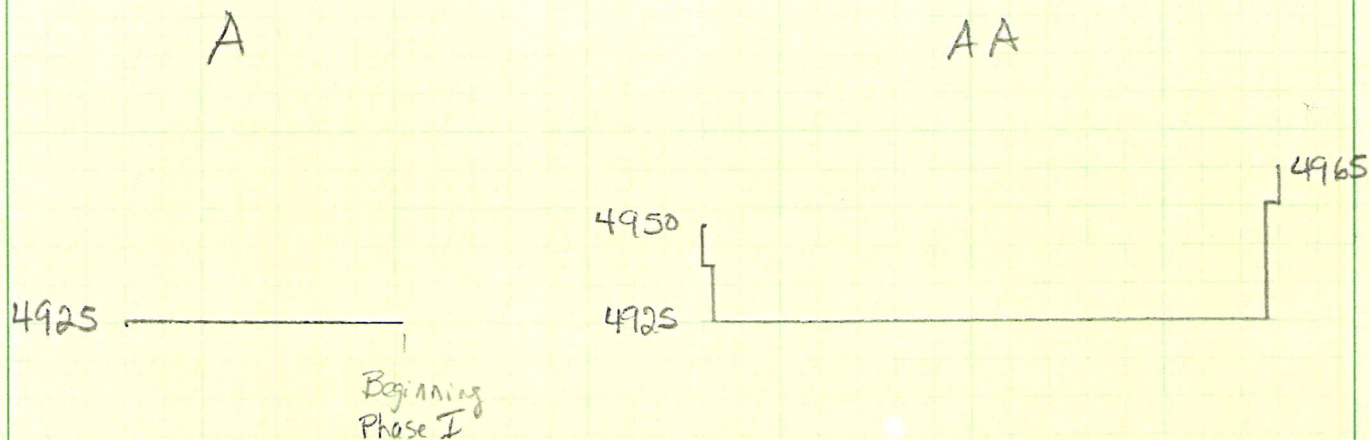
VERTICAL 1" = 50'

# Phase II

EXISTING



PROPOSED



HORIZONTAL 1" = 200'

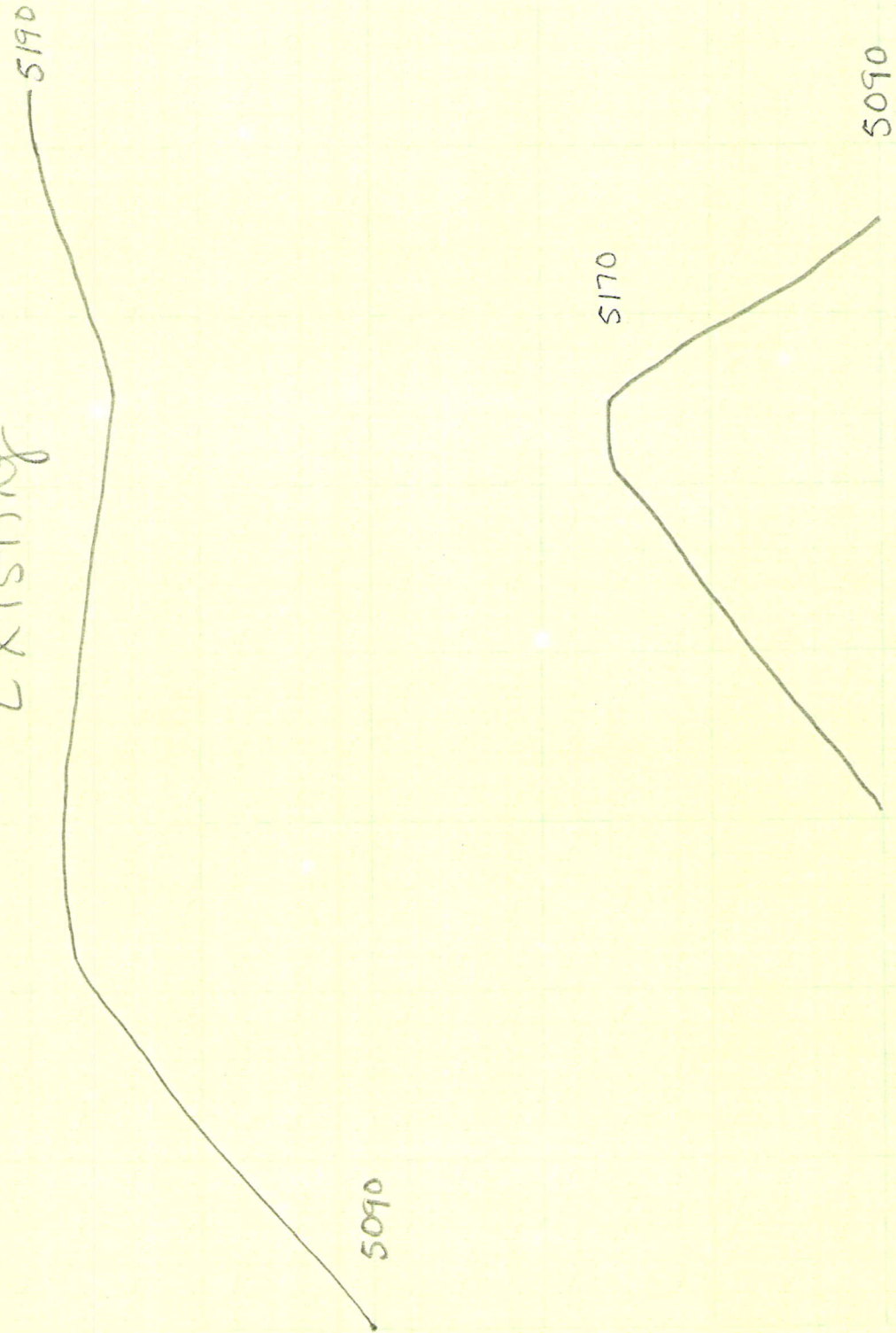
VERTICAL 1" = 50'



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42-382 100 RECYCLED WHITE 5 SQUARE  
42-389 200 RECYCLED WHITE 5 SQUARE  
Made in U.S.A.



# PHASE III Existing



HORIZONTAL 1" = 200'  
VERTICAL 1" = 50'